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Memorandum

FORESTRY SCIENCES LABORATORY
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4500-

TO : B. E. Wickman, Project Leader

DATE: August 4, 1969

FROM : R. R. Mason, Insect Ecologist

SUBJECT: Tussock moth outbreak in Arizona

Our second measurements of the season of the tussock moth population at Aztec Peak, Arizona, were made on July 29 and 30. These results are compared with the early June measurements at the same sampling points and are summarized below:

Sample point	Mean number larvae per M sq. in. June 2-6	July 29-30	Percent survival
A	28.29	5.98	21
B	18.34	9.03	49
C	19.87	4.34	22
D	26.90	10.34	38
E	30.34	12.38	41
F	29.46	9.26	31
G	24.48	12.10	49
H	8.26	3.75	45
I	2.83	0.69	24
J	2.52	1.09	43
Mean	19.13	6.90	36.3

Most sampled larvae were in the final instar; a few had begun pupation. Defoliation in the vicinity of sample points A through G around the west, north, and east side of Murphy Ranch is now conspicuous for the first time from the ground and air. Dead larvae apparently infected with virus were occasionally observed at most sample points. However, most larvae appeared on the verge of pupation with no obvious disease symptoms.

On July 31, Harold Flake and I surveyed the general outbreak areas in the Sierra Anchas and Pinal Peak by plane. Conspicuous defoliation, as expected, is now extensive around Aztec Peak, particularly to the northwest to Reynolds Creek and along Workman Creek and the adjacent ridge to the south. There is reason to believe that additional fir types in the general vicinity may also contain incipient tussock moth populations that have not yet reached a level where defoliation is visible. The monitored sample points seem to be a reliable indicator of the general situation over the whole area. Defoliation apparently does not become evident until the population of early-instar

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larvae reaches about 15 to 20 per 1,000 sq. in. Much of the surrounding fir type may have light populations that are below this level and, thus, do not yet show defoliation.

Considerable defoliation was observed on Pinal Peak from the air. Although no sample points are located there, it appears from the degree of feeding that population levels on Pinal are generally similar to those in the Sierra Anchas. However, a ground check showed that pupation at Pinal was at least 75 percent complete, whereas at Aztec Peak it has barely begun. It is interesting to speculate whether or not this difference in time of pupation is related to the incidence of virus disease in the population. Dr. Thompson reports that after a few days, no virus disease has yet appeared among larval specimens collected from Pinal Peak while considerable mortality from virus has already occurred among Aztec Peak larvae. Therefore, substantial mortality of larvae could possibly still take place this season at Aztec.

As we have discussed, it would seem desirable that all of those interested in the tussock moth situation in Arizona should meet at a relatively early date (preferably after September 1 for me) to go over present developments. I&DC at Region 3 will need to have a definite decision from the PNW concerning our possible continued interest in the area as a virus test area in light of these new developments. Should the PNW again reject this outbreak for a virus test, Region 3 undoubtedly will be interested in an alternative control and will need to begin making plans accordingly.

Signed in Dr. Mason's absence to avoid delay. — mdg

R. R. Mason